Revised 10/04

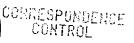
CORRES. CONTROL INCOMING LTR NO.

00581RF04

DUE DATE ACTION

RECEIVED

7004 DEC -2 A 6:47 Department of Energy



ROCKY FLATS PROJECT OFFICE 10808 HIGHWAY 93, UNIT A GOLDEN, COLORADO 80403-8200

NOV 2 4 2004

04-DOE-00873

DIST.	LTR	ENC
BERARDINI, J.H.	X	X
BOGNAR, E.S.	X	X
BROOKS, L.	X	X
BUTLER, L.		
CARPENTER, M.	X	X
CIUCCI, J.A.		
CROCKETT, G. A.		_
DECK, C. A.	X	$\overline{\chi}$
DEGENHART, K. R.	X	X
DEL VECCHIO, D.	\mathbf{x}	X
DIETER, T. J.		_
FERRERA, D. W.	X	\overline{x}
GIACOMINI, J. J.		
LINDSAY, D. C.	X	X
LONG, J. W.		
LYLE, J. L.		
MARTINEZ, L. A.	X	\overline{X}
NAGEL, R. E.	X	\overline{X}
NESTA, S.		
NORTH, K.	x	$\overline{\chi}$
SHELTON, D. C.	X	X
SPEARS, M. S.	X	\overline{X}^-
TUOR, N. R.	Ä	\overline{X}
WEMELT, K.	Х	\overline{X}
WILLIAMS, J. L.		
ZAHM, C.	Х	X
	1	

COR. CONTROL	TX	X
ADMIN, RECORD	X	X
PATS/130		

Reviewed for Addresses Corres, Control RFP

12/02/04	X.
Dale	Ву

12/02/04	L
Dale	Ву

₹ef.	Ltr.	#	

OOE ORDER #



Mr. Steven H. Gunderson Colorado Department of Public Health and Environment 4300 Cherry Creek Drive South Denver, Colorado 80246-1530

Dear Mr. Gunderson:

The purpose of this letter is to deliver the Final Pre-Demolition Survey Report (PDSR) for the First Floor of Building 707 for your concurrence. This transmittal is in accordance with the Building 707 Closure Project Decommissioning Operations Plan, Section 4.5.1., and is the result of the consultative process to establish and document the final survey status. This report identifies the specific portions of the building that meet the radiological unrestricted release criteria of the Rocky Flats Environmental Technology Site Pre-Demolition Survey Plan, MAN-127-PDSP (PDSP). The demolition will involve embedded pipes that have low levels of internal contamination, which will require special handling during removal. Also, a few discrete locations, mostly on the slab, have minor amounts of residual intractable contamination following extensive decontamination. These locations have been clearly identified to facilitate removal and packaging as low level radiological waste and the affected floor areas have been further protected in order to prevent recontamination of rubble produced during the demolition.

The Independent Verification (IV) of the characterization data performed by the Oak Ridge Institute of Science and Education (ORISE) was completed and a copy of their Interim Report is enclosed for your information. The Department of Energy (DOE) evaluated the ORISE results and measurement data and determined the portions of Building 707 that will not be protected and / or controlled meet the criteria for unrestricted release. The DOE noted differences between the ORISE analysis of the IV data and the contractor's analysis of the PDSR data. These differences are discussed in the Position Paper for the Building 707 Final Survey Data Resolution, which is also enclosed for your information. Considering these differences, the DOE concludes that the requirements of the PDSP have been met and is satisfied that the final survey results support this conclusion. The analysis differences and this conclusion have been discussed with the Colorado Department of Public Health and Environment through the consultative process. ORISE also reviewed the project's PDSRs and all of their questions and comments were resolved with out requiring any changes to the final reports.

ADMIN RECORD

B707-A-000153

Please feel free to direct any questions to Gary Schuetz at (303) 966-3016 or you may contact me at (303) 966-2282.

Sincerely,

Joseph A. Legare, Director RFPO Project Management

Enclosures:

- 1. K-H PDSR for 1st floor of B707
- 2. ORISE Interim Report on B707 IV Measurement Results
- 3. Position Paper for the Building 707 Final Survey Data Resolution

ce w/Encl:

- F. Lockhart, OOM, RFPO
- B. Wallin, RFPM. RFPO
- E. Kray, CDPHE

cc w/o Encl:

- G. Schuetz, HQCPM
- D. Delvechio, K-H

Administrative Record

November 24, 2004

Mr. Gary Schuetz Rocky Flats Project Office U.S. Department of Energy 10808 Hwy 93, Unit A Golden, CO 80403

SUBJECT:

DOE CONTRACT NO. DE-ACO5-00OR22750
INTERIM LETTER REPORT—VERIFICATION SURVEY OF THE
BUILDING 707 CLOSURE PROJECT, ROCKY FLATS
ENVIRONMENTAL TECHNOLOGY SITE, GOLDEN, COLORADO

Dear Mr. Schuetz:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) recently performed verification surveys of the Building 707 Closure Project at the Rocky Flats Environmental Technology Site (RFETS). Building 707 was used for manufacturing and assembling weapons components until operations were suspended in 1989. Building 707 consists of two stories with a basement and a one-story addition. The first floor portion of the building was separated into modules for various production activities. The second floor contained ventilation fans, filter plenums, pumps and tanks that supported operations. The basement contained various spent solvent and machine oil tanks. The U.S. Department of Energy's decommissioning contractor, Kaiser-Hill Company, LLC (K-H), is in the final stages of completing the remediation of building surfaces in Building 707. The contaminant of concern for the Building 707 Closure Project is 35 year old weapons grade plutonium—consisting of primarily Pu-239 and Pu-240—and Am-241. K-H has performed characterization surveys, subsequent remediation, and final status surveys within Building 707 and plans to demolish the facility. Several areas on the first and second floors will be packaged and disposed of as radiological waste. The remainder of the building will be free released.

Site verification activities were performed during the periods of July 27 and 28, October 11 through 15, and October 22 through 26, 2004 in accordance with a project-specific plan, submitted to and approved by the DOE, and the ORISE/ESSAP Survey Procedures and Quality Assurance Manuals (ORISE 2004a, b, and c). Verification surveys included alpha surface scans and total and removable surface activity measurements and sampling. Instrumentation included gas proportional and plastic scintillation detectors coupled to ratemeter-scalers with audible output.

ESSAP selected 46 survey units, approximately 30 percent of the total survey units, for verification. Thirty-one of the survey units were Class 1, 14 were Class 2 survey units, and one was Class 3. Alpha surface scan coverage for selected Class 1 survey units was 100 percent for first floor survey units, approximately 50 to 70 percent of the second floor units, and approximately 20 to 40 percent for lower walls. Scans on selected Class 2 and 3 survey units ranged from 20 to 50 percent on floors, 10 percent on lower walls, approximately 5 percent of overhead and upper wall surfaces, and approximately 50 percent of former air handling units' exterior and interior surfaces. Overhead and upper surface scans focused on areas such as ledges, support beams, and around penetrations or other openings through the ceiling. Direct measurements for alpha surface activity were performed at 495 locations in 46 survey units from first floor modules "A" through "K" and from the second floor survey areas "B", "R", and annex survey area "C". A smear sample was collected at each direct measurement location to determine removable activity levels.

Smear samples and survey results were returned to the ESSAP laboratory in Oak Ridge, TN for analysis and interpretation. Sample analyses were performed in accordance with the ORISE/ESSAP Laboratory Procedures Manual (ORISE 2004d). Smear samples were analyzed for gross alpha and gross beta activity using a low-background proportional counter. Smear data and direct measurement data were converted to units of disintegrations per minute per 100 square centimeters (dpm/100 cm²). Alpha surface activity measurements were calculated based on an alpha efficiency determined in accordance with ESSAP's ISO-7503¹ based calibration procedures.

Locations of elevated alpha radiation were identified in 25 survey units from eleven survey modules on the floors, lower walls, overhead, and upper wall areas during alpha surface scans. Alpha scan activity ranged from 0 to 6,000 cpm. The highest alpha levels were identified on the "J" module floor and "K" module walls. ESSAP did not collect measurements in this area of "K" module; rather K-H was notified of ESSAPs findings so that additional remediation could be conducted. K-H provided post-remediation data for review. The results indicate that the majority of activity on the wall is <300 dpm/100 cm²; however, activity remains that exceeds the maximum guideline and these areas are expected to be covered prior to demolition (K-H 2004).

Total and removable alpha surface activity level ranges are reported in Table 1. Prior to additional remediation, total alpha surface activity ranged from -36 to 31,000 dpm/100 cm². Areas with the highest total activity measurements were detected in module "A" survey unit 707027, module "B" survey unit 707035, and module "J" survey unit 707095. Removable alpha activity ranged from 0 to 470 dpm/100 cm² with the highest removable activity identified in modules "A" survey unit 707024, "B" survey unit 707035, and "J" survey unit 707095.

International Standard. ISO 7503-1, Evaluation of Surface Contamination – Part 1: Beta emitters (maximum beta energy greater than 0.15 MeV) and alpha emitters, August 1, 1988.

Survey results were compared to the following DOE Order 5400.5 surface activity guidelines (DOE 1993 and 1995):

Total Activity 100 a dpm/100 cm² 300 a dpm/100 cm²

Removable Activity 20 a dpm/100 cm²

Seventy-four verification surface activity measurements from 27 survey units exceeded the 300 dpm/100 cm² maximum guideline. Of these 27 survey units, 11 were Class 2. K-H was notified of these results and elected to remediate most areas identified. Table 2 reports the post-remedial action (post-RA) alpha measurements collected by ESSAP. The post-RA total alpha activity ranged from 29 to 420 dpm/100 cm². Also, ESSAP was unable to re-evaluate several remediated locations prior to departure from the site. For a large area of contamination in module "K" identified by ESSAP, K-H remediated the area and provided post-RA results to ESSAP for review. The results indicated that for the most part the remaining alpha activity levels were below the maximum allowable surface activity guideline. However, areas remain along the floor wall interface in module K where the activity still exceeds the guideline. There are other locations in modules "B" and "J" exceeding the guidelines that K-H has attempted to remediate but were unable to achieve activity levels below acceptable limits. Rather, K-H will cover these areas with metal plating prior to demolition of the building and floor slab and then will dispose of material from these areas as radiological waste. K-H also designated the floor of survey module "C" for disposal as radiological waste.

As part of the verification, ESSAP conducted instrument comparison alpha surface activity measurements with K-H in three survey units in module "C". The comparison measurements were used to verify calibration and instrument operations. These locations had been identified during the initial characterization investigation by Bartlett Services, Inc. (BSI). Table 3 reports the dpm/100 cm² alpha activity for three separate instrument combinations used for surveys in Building 707. Total alpha measurements obtained by ESSAP for these areas ranged from 100 to 57,000 dpm/100 cm². A review of the ESSAP to K-H data shows that ESSAP's reported activity levels were generally twice those reported by K-H. This difference is most likely the result of the difference in calibration procedures. ESSAP calculates instrument efficiencies in accordance with ISO-7503 to account for expected attenuation of alpha radiation in the field. ESSAP also noted that in most cases, the Bartlett survey instrument results were 20 to 40 percent less than the K-H reported results.

In summary, ESSAP conducted independent verification activities on selected areas of Building 707. ESSAP identified alpha activity exceeding the 300 dpm/100 cm² guideline in 59 percent of the survey units selected for verification. The majority of the contamination identified was in addition to areas that had been identified by K-H as exceptions. K-H was notified of ESSAP's findings and immediately addressed the findings through remediation or by designating a location as an exception to be addressed during demolition. ESSAP re-evaluated most of the areas and found remediation to be successful; however, a number of locations remain that exceed the DOE maximum total activity guidelines.

It is ESSAP's opinion that most areas of residual contamination identified during independent verification in Building 707, now comply with the DOE maximum total surface activity guideline. Exceptions to the guideline will be addressed by K-H during the demolition of the building or subsequent removal of the slab.

However, two issues have been identified for which ESSAP can not concur that the final radiological status of Building 707 has been accurately documented. ESSAP is therefore, unable to conclude that the entire structure satisfies the requirements for release for unrestricted use. Because ESSAP identified undocumented contamination in the majority of verified survey units, ESSAP's conclusion is that undocumented contamination in excess of the guidelines most likely also exists in unverified building areas. Furthermore, because contamination in excess of the maximum guidelines was identified in Class 2 areas, ESSAP also is unable to verify that K-H appropriately classified the building and had adequate final status survey coverage of these areas. The instrument comparison information discussed previously and provided in Table 3 may indicate a partial root cause for the discrepancies identified during verification surveys. However, the degree to which surface activity levels were found to exceed the guideline can not be attributed to the difference in measurement methods, rather it is indicative of a procedural deficiency.

In conclusion, ESSAP's results did not verify the reported final radiological condition of Building 707. ESSAP recommends that K-H evaluate the bases used for survey unit classification and reclassify and resurvey areas/units as necessary. Additionally, quality assurance surveys consisting of surface scans using a graded approach are recommended for those areas of Building 707 where ESSAP did not conduct verifications. These are necessary to provide assurance that remaining areas of residual activity exceeding the maximum allowable guideline have been identified and addressed.

Please contact me at (865) 576-5321 or Tim Vitkus at (865) 576-5073 if we may provide additional information.

Sincerely,

Phyllis Weaver
Health Physics Project Leader
Environmental Survey and
Site Assessment Program

PW:ar

Enclosures

cc:

B. Wallin, DOE/RFPO

E. Abelquist, ORISE/ESSAP

T. Vitkus, ORISE/ESSAP File/0408

Distribution approval and concurrence:	Initials	Date
Technical Management Team Member		
Laboratory Manager		
Quality Manager		

TABLE 1

TOTAL AND REMOVABLE ALPHA ACTIVITY MEASUREMENT RANGES
BUILDING 707 CLOSURE PROJECT
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
GOLDEN, COLORADO

Survey Unit	Survey Module	Survey Unit Classification	Number of Direct Measurements	Number of Direct Measurements in excess of 300 (dpm/100 cm²)	Alpha Activity Range (dpm/100 cm²)	Removable Activity Range (dpm/100 cm²)
707010	N/Aª	2	15	1	-14 to 2,200	0 to 1
707011	N/A	2	17	0	14 to 72	0 to 3
707013	Offices	3	22	0	-14 to 170	0 to 1
707014	Process Rooms & Loading Dock	2	30	6	-36 to 1,600	0 to 76
707015	Rm 167 floor	l	4 .	0	72 to 110	0
707016	N/A	· l	7	5	51 to 1,900	0 to 29
707021	Α	2	35	_ 3	-7 to 860	0 to 11
707022	A	1	5	2	58 to 1,900	0 to 3
707024	A]	6	3	65 to 4,600	0 to 270
707027	A	1	6	4	43 to 12,000	0 to 74
707028	A	1	7	2	36 to 380	0 to 3
707030	В	2	23	3	22 to 2,500	0 to 27
707032	В	1	7	0	14 to 140	0 to 3
707035	В]	8	5	79 to 9,500	0 to 470
707036	В	11	7	1	58 to 2,700	0 to 1
707039	С	2	10	0	88 to 230	0 to 3
707048	D	2	9	1	14 to 1,500	0 to 7
707053	D	1	10	0	36 to 120	0 tol
707054	D	1	10	0	29 to 110	0 tol
707057	E	2	19	5	0 to 3,800	0 to 3
707058	E	1	6	0	7 to 100	0 to 1
707060	Ε,	l	10	0	36 to 170	0 to 3
707062	E	1	11	1	0 to 1,600	0 to 3
707064	E	11	10	0	7 to 100	0 to 1
707066	F	2	25	1	-29 to 400	0 to 3
707068	F	1	6	0	29 to 87	0 to 7
707070	F	1 .	6	2	22 to 4,700	0 to 13
707072	F .	1	7	0	7 to 190	0 to 5
707075	G	2	24	1	-22 to 790	0 to 9
707077	G]	8	0	58 to 180	0 to 3

TABLE 1 (CONTINUED)

TOTAL AND REMOVABLE ALPHA ACTIVITY MEASUREMENT RANGES BUILDING 707 CLOSURE PROJECT ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE GOLDEN, COLORADO

Survey Unit	Survey Module	Survey Unit Classification	Number of Direct Measurements	Number of Direct Measyrements in excess of 300 (dpm/100 cm ²)	Alpha Activity Range (dpm/100 cm²)	Removable Activity Range (dpm/100 cm²)
707082	G	l	7	0	72 to 150	0
707083	G	ì	6	0	0 to 180	0 to 1
707084	Н	2	8	0	0 to 36	0 to 1
707090	Н	1	7	1	-22 to 450	0 to 3
707093	K	2	18	7	36 to 3,900	0 to 5
707095	J	1	11	8	65 to 31,000	0 to 250
707098	K	· 1	12	3	79 to 800	0 to 7
707101	N/A	1	4	0	7 to 220	0 to 1
707106	N/A	1	5	1 .	36 to 710.	0 to 3
707109	N/A	1	4	2	29 to 3,200	0 to 1
707113	Е	1	8	1	29 to 350	0 to 3
707114	Walls only	1	2	. 0	29 to 200	0
707115	N/A	1	10	0	-7 to 72	0 to 3
707116	N/A	1	8	1	14 to 2,700	0 to 72
707117	J	2	5	1	71 to 390	0 to 1
707118	J	2	7	3	53 to 2,300	0 to 22

^a N/A = Second floor survey area. No specific survey module designation indicated.

TABLE 2

POST-REMEDIAL ACTION SURFACE ACTIVITY LEVELS BUILDING 707 CLOSURE PROJECT ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE GOLDEN, COLORADO

Survey Unit	Survey Module N/A Process	Survey Unit Classification	Number of Measurements Greater than 300 (dpm/100 cm ²)	Initial Alpha Activity Range (dpm/100 cm ²)	Post-Remedial Action Measurements Alpha Activity Range (dpm/100 cm²)
707014	Rooms & Loading Dock	2	6	-36 to1,600	a,b
707016	N/A	1	5	51 to 1,900	250°
707021	A	2	3	-7 to 860	a,b
707022	A	1	2.	58 to 1,900	94 to 110
707024	Α	<u> </u>	3	65 to 4,600	120 to 220
707027	Α	11	4	43 to 12,000	43 to 210 ^{b,d}
707028	Α]	2	36 to 380	b
707030	В	2 '	3	22 to 2,500	58 ^{b,d,e}
707035	В	1	5	79 to 9,500	79 to 170 ^d
707036	В	1	1	58 to 2,700	120
707048	D	2	1	14 to 1,500	72
707057	E	2	5	0 to 3,800	14 ^{b,e}
707062	E	1	1	0 to 1,600	110
707066	F	2	1	-29 to 400	ь
707070	F	1	2	22 to 4,700	43
707075	G	2	1	-22 to 790	79
707090	Н]]	-22 to 450	130 ¹
707093	K	2	7	36 to 3,900	b,d,e
707095	J	1	8	65 to 31,000	29 to 420 ^{b,d}
707098.	K	1	3	79 to 800	e
707106	N/A	1	1	36 to 710	51
707109	N/A	1	2	29 to 3,200	. 65
707113	E	1	1	29 to 350	Ь
707116	N/A	l	1	14 to 2,700	110
707117	J	2	1	71 to 390	b,e
707118	J	2	3	53 to 2,300	58 to 120

^aEquipment removed.

bOne or more locations remains above guidelines.

^cPost-remedial action measurement is location with highest activity level of all 5 representative locations.

^dSome remediation was attempted but the location(s) have activity that will be controlled during the building demolition or subsequent removal of the floor slab.

[&]quot;All locations were not rechecked after remediation.

Post-remedial action measurement is the average of 5 point measurements collected at this locations.

Building 707 Closure Site RFETS project/408/2004-11-24 Interim Letter Report

TABLE 3

COMPARISON MEASUREMENTS ALPHA SURFACE ACTIVITY LEVELS SURVEY MODULE C FLOOR **BUILDING 707 CLOSURE PROJECT** ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE GOLDEN, COLORADO

K-H/Bartlett Measurement Locations	Survey Unit ^a	ESSAP Alpha Activity ^b (dpm/100 cm ²)	K-H Alpha Activity ^c (dpm/100 cm ²)	Bartlett Alpha Activity ^{d,e} (dpm/100 cm²)
2	707042	450	204	404
5	707042	5,300	2,076	1,737
25	707042	57,000	24,429	15,000
15	707042	5,700	1,579	345
16	707042	8,200	3,729	383
20	707042	1,200	593	403
33	707042	4,000	1,851	985
31/32	707042	820	255	413/590
15	707042	760	420	345
1	707042	2,000	1,058	413
5	707045	2,500	905	1,477
7	707045	100	54	376
9	707045	26,000	9,005	7,903
13	707046	1,100	312	814

^a Survey units are located in "C" Modeule.

bESSAP alpha activity obtained using a 126 cm² gas proportional detector. The alpha efficiency is determined in accordance with the ESSAP procedure based on ISO-7503.

^cMeasurements obtained using Electra Dp6 100 cm² scintillation detector.

dlnitial characterization survey data reported by Bartlett.
Measurements based on 8 second stamp using a large-area (582 cm²) gas proportional detector.

REFERENCES

Oak Ridge Institute for Science and Education (ORISE). Revised Independent Verification Team Project-Specific Plan for the Building 707 Closure Project Rocky Flats Environmental Technology Site, Golden, Colorado. Oak Ridge, TN; July 7, 2004a.

Oak Ridge Institute for Science and Education. Survey Procedures Manual for the Environmental Survey and Site Assessment Program. Oak Ridge, TN; September 2, 2004b.

Oak Ridge Institute for Science and Education. Quality Assurance Manual for the Environmental Survey and Site Assessment Program. Oak Ridge, TN; August 31, 2004c.

Oak Ridge Institute for Science and Education. Laboratory Procedures Manual for the Environmental Survey and Site Assessment Program. Oak Ridge, TN; August 31, 2004d.

U.S. Department of Energy (DOE). Radiation Protection of the Public and the Environment. Washington, DC: DOE Order 5400.5; January 7, 1993.

U.S. Department of Energy. Memorandum from R. Pelletier to Distribution, "Application of DOE 5400.5 Requirements for Release and Control of Property Containing Residual Radioactive Material"; November 17, 1995.

Kaiser-Hill Company LLC (K-H). E-mail from Terry Vaughn, K-H, Rocky Flats to Phyllis Weaver, ORISE. November 2004.

Position Paper for the Building 707 Final Survey Data Resolution 11/24/04

The ORISE/ESSAP Interim Report on B707 IV Measurement Results indicated that sixty-seven (67) spots of elevated activity (in excess of the DCGL_{EMC} of 300 dpm/100 cm²) was detected at previously unidentified locations during the Independent Verification Survey of Building 707. These 67 spots were distributed among twentyseven (27) survey units. These results were calculated based on a calibration technique that is inconsistent with the calibration technique utilized at Rocky flats for radiological instrumentation. ESSAP calculates instrument efficiencies in accordance with ISO-7503 to account for expected attenuation of alpha radiation in the field. Rocky Flats utilizes applicable ANSI standards to calibrate instruments to determine the 4-pi efficiency of the instrument. Given that Rocky Flats applies the DOE Order 5400.5 limits as defaults for the release of property and building debris, and the specified limits are close to the levels of background alpha radiation in the field, a correction factor for attenuation of alpha radiation in the field is not applied. The application of the ISO-7503 standard is more relevant when dose or risk-based standards are applied. In this case, a correction factor for alpha attenuation may be necessary to calculate total activity when the dose or riskbased limit is derived as the total activity that can remain to protect the sensitive receptor (i.e., human health and the environment). The default limits applied at Rocky Flats are anticipated to be several orders of magnitude lower than a derived dose limit based on EPA and DOE regulations (i.e., 15 mrem per year to an offsite recipient).

An illustration in the difference of the calibration methods is attached.

When the IV Measurement Results are corrected for the Rocky Flats calibration method, approximately 58 spots of elevated activity were detected in Building 707 during the IV survey. However, only 15 of the spots were located on the upper walls/ceiling, which is the area in question because a 100% scan was not performed for all upper walls and ceilings. Thus, the average number of elevated spots identified on the upper walls/ceiling is 0.5 per survey unit. This falls within the expected range of error, given that the scans are designed to achieve 95% confidence. The remaining spots were identified on the floors and lower walls. These areas were the most extensively contaminated and remediated. Because of the radiological condition of these areas prior to decontamination, the number of elevated spots of contamination identified during the IV survey falls within the expected range of error. The DOE did expect that a 100% scan be performed in these areas to minimize the number of elevated spots of activity remaining. The review of the PDSR indicates that the project did comply with this expectation (i.e., a 100% scan was performed for all suspect floor and lower wall areas).

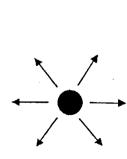
It should be noted that the B707 project personnel were notified of all areas of elevated activity identified during the IV field surveys, and the project subsequently remediated or protected these areas for disposal as low-level radioactive waste (LLW).

In conclusion, the DOE has determined that the contractor has met the minimum requirements of the Site Pre-Demolition Survey Plan (PDSP) for the final survey of Building 707.

Source A

 4π Activity = 1000 dpm 2π Activity = 500 dpm

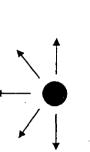
ANSI (Rocky Flats) Detector



Detector

ISO - 7503

(ORISE)



Assumed Surface Efficiency (Es) = 0.25

Efficiency $T_{\text{otal}} = \frac{\text{Instrument cpm}}{\text{(Source A 2 }_{\pi} \text{ Activity)} \times (\text{Es})}$

(Source A 4 n activity)

Instrument cpm

Efficiency Total =